

WHAT IS CLAIMED IS:

1. An active antenna system of a radio communication terminal comprising:
a directional antenna that transmits and receives an RF signal to and from a base station through a radio link; and
an amplifying unit integrated on one board together with the directional antenna and amplifying and filtering the RF signal.
2. The system of claim 1, wherein the amplifying unit is integrated at an upper portion of an opposite side of the side where the directional antenna is formed.
3. The system of claim 1, wherein the amplifying unit comprises:
a plurality of duplexers that separates a transmission path and a reception path of an RF signal;
a sending end amplifying/filtering unit that amplifies and filters a transmitted RF signal;
a receiving end amplifying/filtering unit that amplifies and filters a received RF signal; and
a bias unit that separates an RF signal and a DC power inputted through a transmission line connected to a radio communication terminal.

4. The system of claim 3, wherein the amplifying unit further comprises:
a closed loop control circuit that detects a transmission output and generating/outputting a control signal.
5. The system of claim 4, wherein the closed loop control circuit comprises:
a coupling unit that branches a transmission output from a final end of the sending end amplifying/filtering unit; and
a detection controller that detects a strength of power of the branched transmission output and generates a gain control signal.
6. The system of claim 3, wherein the bias unit further comprises:
a band pass filter that passes only a signal of a specific band.
7. The system of claim 6, wherein the band pass filter separates a control signal.
8. An active antenna system of a radio communication terminal comprising:
a directional antenna that transmits and receives an RF signal to and from a base station;
a sending end amplifying/filtering unit that amplifies and filters an RF signal to be transmitted through a duplexer;
a receiving end amplifying/filtering unit that amplifies and filters the RF signal received through the duplexer;

a closed loop control circuit that generates a control signal according to power of a transmission RF signal outputted from a sending end amplifying/filtering unit; and

a bias unit that separates the RF signal and a DC power transmitted from a radio communication terminal through a transmission line.

9. The system of claim 8, wherein the duplexer separates a transmission path and a reception path of an RF signal at both ends of the sending end amplifying/filtering unit and the receiving end amplifying/filtering unit.

10. The system of claim 8, wherein the sending end amplifying/filtering unit and the receiving end amplifying/filtering unit comprise, respectively:

a plurality of amplifiers that amplifies a transmission RF signal and a reception RF signal;

a filter that filters each signal between amplifiers; and

a power supply unit that supplies power to each amplifier.

11. The system of claim 10, wherein the power supply unit supplies a DC power transmitted from the bias unit.

12. The system of claim 8, wherein the receiving end amplifying/filtering unit includes a variable amplifier that amplifies a reception RF signal as much as a variable gain according to a control signal.

13. The system of claim 8, wherein the closed loop control circuit comprises:
- a coupling unit that branches a transmission output from a final end of the sending end amplifying/filtering unit; and
 - a detection controller that generates a control signal according to a strength of power of the branched transmission output and applying the control signal to the variable gain amplifier.
14. The system of claim 13, wherein the control signal makes the transmission output and the gain of the variable gain amplifier to be proportional to each other.
15. An active antenna system of a radio communication terminal comprising:
- a directional antenna that transmits and receives an RF signal to and from a base station;
 - a sending end amplifying/filtering unit that amplifies and filters a transmission RF signal;
 - a receiving end amplifying/filtering unit that amplifies and filters a reception RF signal; and
 - a bias unit that separates an RF signal, a DC power and a control signal transmitted from the radio communication terminal through a transmission line.

16. The system of claim 15, wherein the bias unit includes a band pass filter that passes only a control signal among signals transmitted through the transmission line.

17. The system of claim 15, wherein the sending end amplifying/filtering unit and the receiving end amplifying/filtering unit are connected to a duplexer separating a transmission path and a reception path at both ends.

18. The system of claim 15, wherein the sending end amplifying/filtering unit and the receiving end amplifying/filtering unit comprise, respectively:

a plurality of amplifiers that amplify a transmission RF signal and a reception RF signal;

a filter that filters each signal between amplifiers; and

a power supply unit that supplies power to each amplifier.

19. The system of claim 18, wherein the power supply unit supplies a DC power transmitted from the bias unit to the amplifier.

20. The system of claim 15, wherein the sending end amplifying/filtering unit and the receiving end amplifying/filtering unit include a variable gain amplifier that amplifies a reception RF signal as much as a variable gain according to a control signal.

21. The system of claim 3, wherein the bias unit further comprises a filter that passes only a signal meeting a predetermined filtering criteria.

22. An active antenna system of a radio communication terminal comprising:
an antenna that transmits and receives a communication signal to and from a communication node through a communication link; and
an amplifying unit integrated on one board together with the antenna and amplifying and filtering the communication signal.

23. A radio communication method comprising:
transmitting and receiving a communication signal in an antenna to and from a communication node through a communication link; and
amplifying and filtering the communication signal in an amplifying unit integrated on one board together with the antenna.

24. A radio communication method comprising:
transmitting and receiving an RF signal in a directional antenna to and from a communication node;
amplifying and filtering an RF signal in a sending end amplifying/filtering unit to be transmitted through a duplexer;
amplifying and filtering the RF signals in a receiving end amplifying filtering unit through the duplexer;

a closed loop control circuit that generates a control signal according to power of a transmission RF signal outputted from a sending end amplifying/filtering unit; and

a bias unit that separates the RF signal and a DC power transmitted from a radio communication terminal through a transmission line.